INTERPRETATION IC 135-2020-28 OF
ANSI/ASHRAE STANDARD 135-2020 BACnet® -
A Data Communication Protocol for Building
Automation and Control Networks

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Request from: Michael Osborne, BTB Consulting, 130 Kingham Place, Victoria, BC, Canada V9B 1L8.

Reference: This request for interpretation refers to ANSI/ASHRAE Standard 135-2020, Annex AB and the expected behavior when an invalid Originating Virtual Address (OVA) or Destination Virtual Address (DVA) is included.

Background:

Clause AB.3.1.5 specifies BVLC-Result NAK messages for common error conditions for a node. No such list of errors exists for a hub.

The behaviors listed below are part of a set of negative tests being executed in the labs.

A node receives a BVLC message that contains a DVA.
Clause AB.5.4 states:

> "…On receiving a BVLC message from the BACnet/SC hub function for the local BVLL entity, if the 'Destination Virtual Address' parameter is present and is not the broadcast VMAC address, the BVLC message received shall be dropped."

The present test requires the node to return a BVLC-Result NAK with OVA and DVA absent. The test has been updated to allow either a BVLC-Result NAK or the message to be dropped.

A node receives a BVLC message with an OVA that should not be included.
For example, a Disconnect-Request sent to a node with an OVA.

135-2020 does not specify what a node should do.

Does the node assume the hub sent the Disconnect-Request or that the message was forwarded?

The present test requires the node to return a BVLC-Result NAK with OVA absent and DVA equal to the request OVA. The test has been updated to allow either a BVLC-Result NAK or allow the message to be dropped. If a BVLC-Result NAK is issued, the OVA is absent and the DVA can be either equal to the request OVA or absent.

A hub function receives a BVLC message with an OVA.
Clause AB.5.4 states:
"…When sending a BVLC message to the BACnet/SC hub function to be forwarded, the 'Destination Virtual Address' shall be present, and the 'Originating Virtual Address' parameter shall be absent in the BVLC message…"

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Clause AB.5.3.2 states:

> "…When forwarding a unicast BVLC message, the 'Originating Virtual Address' parameter shall be added, indicating the VMAC address of the connection peer node of the hub connection from which the message was received, and the 'Destination Virtual Address' parameter shall be removed."

Clause AB.5.3.2 requires the hub function to add the OVA. The hub's internal node will not know if the OVA was transported and process the request.

The present test requires the hub to return a BVLC-Result NAK with DVA equal to the request OVA. The test has been updated to allow either a BVLC-Result NAK or allow the message to be dropped. If a BVLC-Result NAK is issued, the DVA is absent to make the BVLC-Result valid.

A hub function receives a BVLC message with a DVA that should not be included.
For example, a Disconnect-Request sent to a hub with a DVA.

135-2020 does not specify what a hub function should do.

The present test requires the hub to return a BVLC-Result NAK with OVA and DVA absent. The test has been updated to allow either a BVLC-Result NAK or allow the message to be dropped.

Interpretation #1: A device shall not execute a received BACnet/SC BVLC message that contains either an invalid Originating Virtual Address (OVA) or an invalid Destination Virtual Address (DVA).

Question #1: Is this Interpretation correct?

Answer: Yes

Interpretation #2: It is a local matter if or how a device responds to a BACnet/SC BVLC message that contains either an invalid Originating Virtual Address (OVA) or an invalid Destination Virtual Address (DVA).

Question #2: Is this Interpretation correct?

Answer: Yes

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